WHAT IS CLAIMED IS:

1. A substrate holder for supporting a substrate, comprising:

a supporting surface;

a cooling component;

a heating component positioned adjacent to the supporting surface and between the supporting surface and the cooling component;

a fluid gap positioned between the cooling component and the heating component, the fluid gap configured to receive a fluid to vary the thermal conductance between the cooling component and the heating component; and

a brazing material disposed between the cooling component and the heating component, the brazing material disposed adjacent to the fluid gap.

2. The substrate holder according to claim 1, wherein the heating component comprises a body portion and an embedded heater disposed in the body portion.

3. The substrate holder according to claim 2, wherein the body portion comprises an aluminum alloy, and the embedded heater is cast in the aluminum alloy.

4. The substrate holder according to claim 1, wherein the cooling component comprises an upper cap and a lower cap.

5. The substrate holder according to claim 4, wherein the upper cap comprises a plurality of channels configured to receive a cooling fluid.

6. The substrate holder according to claim 5, wherein the lower cap comprises a plate having a flat top surface positioned adjacent to the upper cap.

7. The substrate holder according to claim 6, further comprising:

a second brazing material positioned between the upper cap and the lower cap.

8. The substrate holder according to claim 1, further comprising:

a mechanical connection positioned between the supporting surface and the heating component.

9. The substrate holder according to claim 8, wherein the mechanical connection comprises an adhesive.

10. The substrate holder according to claim 1, wherein the fluid gap comprises at least one fluid gap groove in at least one of the heating component and the cooling component.

11. The substrate holder according to claim 10, wherein the fluid gap groove is disposed in the cooling component.

12. The substrate holder according to claim 10, wherein the fluid gap groove is disposed in the heating component.

13. The substrate holder according to claim 1, further comprising:

at least one isolating groove positioned between the cooling component and the heating component, the isolating groove configured to prevent flow of the brazing material into the fluid gap.

14. The substrate holder according to claim 13, wherein at least a portion of the isolating groove is disposed in the cooling component.

15. The substrate holder according to claim 13, wherein at least a portion of the isolating groove is disposed in the heating component.

16. The substrate holder according to claim 15, wherein at least a portion of the isolating groove is disposed in the cooling component.

17. The substrate holder according to claim 13, wherein at least one isolating groove comprises a plurality of isolating grooves.

18. The substrate holder according to claim 17, wherein the plurality of isolating grooves are concentric.

19. The substrate holder according to claim 1, further comprising:

first and second isolating groove positioned between the heating component and the cooling component and on opposite sides of the fluid gap, the isolating grooves configured to prevent flow of the brazing material into the fluid gap.

20. The substrate holder according to claim 18, wherein the isolating grooves are disposed in at least one of the heating component and the cooling component.

21. The substrate holder according to claim 19, wherein the heating component and the cooling component comprise aluminum alloys.

22. The substrate holder according to claim 19, wherein the heating component and the cooling component comprise a same aluminum alloy.

23. The substrate holder according to claim 21, wherein the heating component comprises a body portion and an embedded heater, the embedded heater cast into the body portion.

24. The substrate holder according to claim 22, wherein the cooling component comprises an upper cap and a lower cap, the heating component positioned between the supporting surface and the upper cap.

25. The substrate holder according to claim 24, wherein the upper cap comprises a same aluminum alloy as the heating component.

26. A substrate holder for supporting a substrate, comprising:

a supporting surface;

a cooling component;

a heating component positioned adjacent to the supporting surface and between the supporting surface and the cooling component;

a fluid gap positioned between the cooling component and the heating component, the fluid gap configured to receive a fluid to vary the thermal conductance between the cooling component and the heating component;

a brazing material disposed between the cooling component and the heating component, the brazing material disposed adjacent to the fluid gap; and

means for preventing flow of the brazing material into the contact zone.

27. The substrate holder according to claim 26, wherein the means for preventing flow comprises a groove.

28. The substrate holder according to claim 27, wherein the groove is disposed in at least one of the heating component and the cooling component.

29. The substrate holder according to claim 28, wherein at least a portion of the groove is disposed in the cooling component.

30. The substrate holder according to claim 28, wherein at least a portion of the groove is disposed in the heating component.

31. The substrate holder according to claim 30, wherein at least a portion of the groove is disposed in the cooling component.

32. A method of manufacturing a substrate holder including a heating component and a cooling component, comprising:

providing a fluid gap configured to receive a fluid to vary thermal conductance between the heating component and the cooling component; and

inserting a brazing material between the heating component and the cooling component adjacent to the fluid gap.

33. The method according to claim 32, further comprising:

brazing the heating component, the cooling component, with the brazing material, to form the substrate holder.

34. The method according to claim 33, further comprising:

disposing a groove between the heating component and the cooling component, the groove preventing flow of the brazing material into the fluid gap.

35. The method according to claim 32, further comprising:

casting an embedded heater in a body portion to form the heating component.

36. The method according to claim 35, wherein the body portion comprises an aluminum alloy, and the embedded heater is cast in the aluminum alloy.

37. The method according to claim 32, further comprising:

connecting an upper cap with a lower cap to form the cooling component.

38. The method according to claim 37, wherein the upper cap comprises a plurality of channels configured to receive a cooling fluid.

39. The method according to claim 37, wherein the lower cap comprises a plate having a flat top surface positioned adjacent to the upper cap.

40. The method according to claim 39, further comprising:

brazing the upper cap to the lower cap.

41. The method according to claim 32, further comprising:

mechanically connecting a supporting surface to the heating component.

42. The method according to claim 41, wherein the mechanical connection comprises an adhesive.

43. The method according to claim 32, wherein the heating component and the cooling component comprise an aluminum alloy.

44. The method according to claim 32, wherein the heating component and the cooling component comprise a same aluminum alloy.

45. A substrate holder for supporting a substrate, comprising:

a supporting surface;

means for cooling the supporting surface;

means for heating the supporting surface positioned adjacent to the supporting surface and between the supporting surface and the means for cooling;

means for receiving a fluid to vary thermal conductance between the means for cooling and the means for heating, the means for receiving a fluid being positioned between the means for cooling and the means for heating; and

means for connecting the means for cooling and the means for heating.

46. The substrate holder according to claim 45, wherein the means for heating comprises at least one of a thermoelectric device and a channel configured to flow at least one of elevated temperature fluorinated dielectric liquid, water, and steam.

47. The substrate holder according to claim 45, wherein the means for cooling comprises at least one thermoelectric device.